

We claim:

1. A process for isolating lithium from lithium amalgam by electrolysis over a solid lithium ion conductor, wherein a lithium ion conductor used has the composition $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$
5 where x is at least 0.3 and not more than 0.7.
2. A process as claimed in claim 1, wherein the lithium ion conductor used has the composition $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$, where x is at least 0.4 and not more than 0.6.
- 10 3. A process as claimed in claim 2, wherein the lithium ion conductor used has the composition $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$, where x is about 0.5.
4. A process as claimed in one of claims 1, 2 or 3, wherein the lithium ion conductor used is prepared by shaping and calcining $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$, where x is at least 0.3 and not more
15 than 0.7, and/or compounds which are converted into this during calcination, where the $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$ and/or the compounds is/are used in the form of powder having a mean particle size of not more than 5 microns.
5. A process as claimed in claim 4, wherein the $\text{Li}_{4-x}\text{Si}_{1-x}\text{P}_x\text{O}_4$ and/or the compounds is/are
20 used in the form of powder having a mean particle size of not more than 3 microns.